

- LULY, J.G., GRINDROD, J.F. & PENNY, D. (2006). Holocene palaeoenvironments and change at Three-Quarter Mile Lake, Silver Plains Station, Cape York Peninsula, Australia. *The Holocene* 16: 1085–1094.
- PYE, K. (1983). The coastal dune formations of northern Cape York Peninsula, Queensland. *Proceedings of the Royal Society of Queensland* 94: 33–39.
- WEBSTER, G.L. (1993). A provisional synopsis of the sections of the genus *Croton* (Euphorbiaceae). *Taxon* 42: 793–823.

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Book Review

The Flowering of Australia's Rainforests – a plant and pollination miscellany. G.Williams & P.Adam (2010). CSIRO Publishing: Melbourne. Hardback, 200 pp, 34 colour photographs. ISBN 9780643097612. \$99.95 AUD.

For most flowering plants and gymnosperms, successful pollination is essential for reproduction. Pollination and the vectors that perform it are usually the last aspect considered in any assessment of autecology for a given plant species or community, despite their role being essential in the evolution of species. The body of published work on pollination in Australian rainforests has been previously piecemeal and often hidden in obscure journal papers; hence, this is a welcome synthesis on the subject, albeit with a major backbone of research and theory from the global literature.

This book comprises nine chapters. In Chapter 1, **Flowers and pollination in lore and legend** is examined. This comprises a short review of historical aspects (many biblical or from English poetry), closing with Australian aboriginal examples at the end.

Chapter 2 covers **Categorising rainforest plants**. The authors take a very broad approach by starting with the gymnosperm groups of the cycads and conifers. It was somewhat disconcerting to immediately read basic errors in plant biology and statistics such as “cycads

are usually dioecious” (repeated in caption to p. 31) (all cycads are dioecious) and that the Australian cycad flora is “approximately 30 species” (there are about 80 species). Most cycads don’t occur in rainforest in Australia, yet, the most interesting ones that do such as *Lepidozamia hopei* (the world’s tallest cycad) are not mentioned at all. *Cycas circinalis* is stated to occur in “India, Asia and the South Pacific” (India is part of Asia and this species does not occur in the South Pacific); either way, it doesn’t occur in Australia and doesn’t grow in rainforest. Comments on conifers are little better with “native conifers are frequently dioecious”, “in north-east Australia the Podocarpaceae and Araucariaceae are confined to rainforest” (there are podocarps in eucalypt communities) and “both *Araucaria* and *Agathis* are absent from more complex north-eastern Australian rainforests owing to their inability to regenerate below the dense, shade inducing, floristically complex angiosperm canopies” (which is just plain incorrect). They state that *Euroschinus falcatus* (an angiosperm) is dioecious; however, Jessup (1985) was of the opinion that they were polygamous with male, female or hermaphrodite flowers. While the authors quite openly state that the book is slanted at rainforest systems in New South Wales (nearly all the photos are of species from New South Wales).

Chapter 3 examines **Rise of the Angiosperms, and archaic vascular plants in Australian rainforests**. This concisely provides a potted history of the modern (molecular) view of plant families and flower evolution, although in some cases they stick with tradition (e.g. Euphorbiaceae in the broad sense). There are patches of emotive text such as “grim blanketing of the Antarctic landmass” (p. 35) and some of the conclusions on relic taxa may be no more than illusory. This chapter would have benefited from a geological time scale for the lay reader.

In Chapter 4: **Being a flower**, they examine flower structure, colour and fragrance and what it means to pollination. There is lyrical waxing on p. 59 about the dedication of pollination ecologists!

Chapter 5 covers **Introduction to breeding systems**. There is a good conservation biology slant throughout this chapter with comments such as “local populations of many species are now very small, in some cases reduced to single individuals per stand” and “species become functionally extinct within individual remnants”. Essentially loss of genetic diversity (in part from failure of pollination) leads to extinction. This probably gets the message across to conservation managers, but perhaps should have been emphasised later in the book.

Chapter 6 provides an overview of **Spatial and temporal structure of rainforest** and how it influences pollination and subsequent reproduction. Phenology, the length of flowering life, forest strata and synusia (stratified layers) are examined in some detail.

Australian Vegetation History is reviewed in Chapter 7. As with elsewhere on the earth, obligate pollination mutualisms are concluded to be most at risk and sensitive to disturbance. There is discussion about sparse and mass flowering and pollination guilds, but the text of this chapter doesn't really reflect the title.

In Chapter 8, **Pollination of the Australian flora**, it is all about Myrtaceae, and only two pages of text!

Chapter 9 on **Pollination syndromes: who brings the ‘flower children’ in rainforest?** is more detailed and looks at specific groups of pollinators (e.g. birds, bats, flies, bees etc.) as well as wind. This provides a good opportunity for some detailed discussion on certain plants and their pollinators and is perhaps one of the most comprehensive chapters.

Finally there are short to long appendices on pollination and conservation of remnant communities (i.e. in New South Wales) and case studies (pretty well all from New South Wales), large insects (most pollinating insects are small), dioeciousness or not (this time plainly stating it to be in the subtropics, i.e. New South Wales), self compatibility (ditto comment), coppice regenerators (only 10 species listed, all from New South Wales), pollen groups, and thrips associated with flowers.

Throughout the text, no references are cited or numbered; although, there is a long list at the end. So the reader either delves through all of these to try and find something more specific than was in the text (I'm not sure how you cross reference though), or nowadays can perhaps just use Google Scholar for the information. Maybe it is a sign of things to come, but this ‘modern’ approach to scientific referencing by CSIRO publishing is annoying to say the least.

This book is a useful compendium of information and at times gets on a liquid roll in terms of the stories that it tells; however, it could have been greatly improved with sharper editing and structure throughout. It is nicely produced in hardcover (unlike other recent CSIRO products; see other reviews this journal number), but relatively expensive at \$100 plus (once you have it posted to you).

Reference

- JESSUP, L.W. (1985). Anacardiaceae. In A.S. George (ed.), *Flora of Australia* 25: 170–187. Australian Government Publishing Service: Canberra.

Paul I. Forster, Queensland Herbarium.